

between that of the Mallard X Gadwall, which is buff, and that of the Mallard X Pintail, which is white. The cheeks are strongly chestnut, as we have described in some Gadwall drakes (Harrison J. M. and J. G. 1963.)

The dull purple reflections on the crown and the greenish reflections on the cheek behind the eye support the influence of Pintail and Mallard respectively.

SUMMARY

A wild shot presumptive trigen duck is described, showing characters which may be attributed to Mallard, Pintail and Gadwall, as well as to hybrid Mallard X Pintail and Mallard X Gadwall. The bird shows a tendency towards the development of a bimaculated facial pattern.

ACKNOWLEDGMENTS

We are most grateful to Mr. J. Ellis for the loan of the trigen and to Dr. Pamela Harrison for the photograph of the specimen. We must also thank Mr. A. Blezard, Keeper of Zoology at the Carlisle Museum for the loan of a pair of Mallard X Gadwall hybrids which are to be the subject of a further paper.

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The nest advertisement display as a *Passer*/Ploceidae link

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Received 22nd October, 1964

The sparrows of the genus *Passer* were shown by Suskin (1927) to be related closely to the true weavers, Ploceidae, by reason of their structure, but, apart from these morphological affinities there is little obvious indication of relationship. The domed nest sets the sparrows apart from the finches, Fringillidae, with which they were earlier grouped, but Collias and Collias (1964) show that in its loose structure and haphazard arrangement of material the typical sparrow nest differs from the woven nests of most weavers. Behaviourally there is little evidence to link the two groups. More recent studies suggest, however, that the nest advertisement display may reveal a strong ethological link between the two.

This display is very poorly developed in the House Sparrow, *Passer domesticus*, but occurs in a much more striking form in the Dead Sea Sparrow, *Passer moabiticus*. This species was little known, but the Jordan Valley Expedition of 1962, led by Guy Mountfort, to whom I am indebted for permission to use this data, filmed this species among others and the film was shown at the British Ornithologists' Union Conference at Southampton in 1964. In addition still photographs were taken and I am deeply indebted to Eric Hosking for the photograph shown here and for the opportunity to examine others.



P. moabiticus has a peculiar limited distribution, being confined to the southern end of the Jordan Valley, part of the lower valley of the Tigris, and a third small pocket in eastern Iran. In general appearance it resembles a rather boldly coloured House Sparrow but with a bright yellow area surrounding the bib and on the sides of the neck. The nest is a large domed structure set in a fork in a bush or tree, built of fairly heavy twigs and lined with softer material. In the breeding season the male brings together enough twigs to form a loose shallow cup, which will form the base of the nest, and he then displays on or above this to attract a female. In the intense form of this display the cock perches in a fairly upright posture, with the tail a little raised and partly spread. The head is raised and the wings are spread and lifted: they are raised above the level of the body



Fig.1



Fig.2

and are rapidly beaten through a limited arc while the bird utters a display call (see photograph). When a hen shows interest in the nest, pairing occurs and the nest is completed.

It is interesting to compare this with the nest advertisement displays of typical weavers such as the Baya Weaver *Ploceus phillipinus* (Crook 1960a) and the Village Weaver *P. cucullatus* (Crook 1962). In each case the male builds the base of the nest and a ring of material on which the nest will be formed, but this basis is a pendent structure. The male then clings to this, hanging with its back downwards, and in this position spreads the wings and beats them through a limited arc, while uttering a special call. The tail is fanned and may be horizontal or slightly raised or lowered. The head is usually inclined towards the nest (fig 2). When a female shows interest and accepts the nest it is completed. The pattern is the same as that shown by *Passer moabiticus* but the nest site, and hence the whole behaviour, is inverted. With *Ploceus cucullatus*, when a female arrives the male may fly to the twig she is on and display hanging partly below it (fig 1). In this posture head and tail are raised a little above the mid-line of the body and



Fig.3



Fig.5

the posture more closely resembles a mirror-image of the nest advertisement display of *Passer moabiticus*.

Not all the weavers perform this display in a pendent posture. The Common Quelea, *Quelea quelea*, builds a globular nest between two upright supports. It begins with a cup-shaped base, and having built this displays on it in an upright posture (Crook 1960b). The posture is rather similar to that of *Passer moabiticus* but the tail is tilted sharply upwards and the wings are raised until the tips almost touch and are quivered slightly, but not to any marked extent. The bird may tilt slightly, exposing the white underwing. This is basically the same display but shows specific specialization.

Ploceus cucullatus may show very intense wing-quivering when the female is present (fig 5) and this bears a close resemblance to a posture recorded in *Passer moabiticus* which appears to be a form of this display.

(fig 6), It would appear from these studies that the nest advertisement display of the latter species, and wing-quivering display, can be directly related to similar displays in the weavers of the genera *Ploceus* and *Quelea*.

In his studies of weaver birds Crook recognises several different types of pair formation—in a few species completed before the male leads the female to the nest; in others begun away from the nest but finished there, and in the most advanced social species nest invitation display occurs at the unfinished nest and acceptance of the nest by the female occurs at the commencement of pair formation (Crook 1960b). Crook earlier suggested (1957–8) that the last type evolved from the earlier ones in colonial nesting species in open savannah-type country, although more recently (1962b) he has pointed out that the direction of evolution in the Ploceinae is not established. If Crook's earlier conclusions were correct then the sparrows of the genus *Passer* show this highly evolved type of nest advertisement



Fig. 4

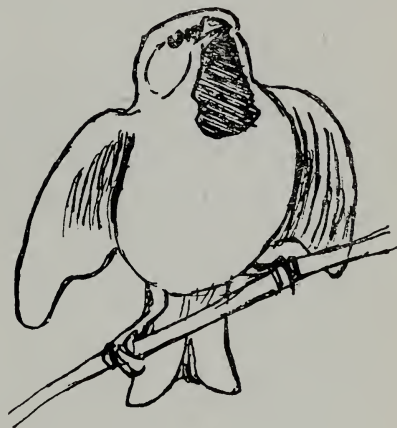


Fig. 6

display although they are not so markedly sociable as the weavers already mentioned, and one must either assume that at some stage they have evolved through similar behavioural patterns, or that they have diverged from the weavers at a point where this form of behaviour had already been evolved. The latter would seem to be the more likely whether this stage of display in weavers is highly evolved or of a basic type. It would be of interest to have more detailed information of the displays of the other genera that are grouped with *Passer* in the Passerinae.

Within the genus *Passer* this nest advertisement display has become modified in different species. In the Golden-headed Sparrow *Passer luteus*, studied by Kunkel (1961), the male gathers a mass of large twigs into a heap in which the nest will subsequently be built. The male displays by this in a crouching position, the body tilted so that the tail is raised.

The body feathers are a little fluffed and the tail partly spread. The male chirps persistently and at high intensity of display the wings are spread and raised a little above the level of the body and shivered in this position (fig. 4). At lower intensities the wings are held away from the body and droop slightly and are shivered in this position. The latter posture is somewhat similar to the wing-quivering displays of *Ploceus cucullatus* and *Passer moabiticus*.

In *P. domesticus* (Summers-Smith 1955) most of this posturing has disappeared and the display has become advertisement calling with a persistently repeated "chirrup". Slight shivering of the wings and raising of the tail only occurs at high intensity on the approach of the female and would appear to be related to the wing-quivering displays of other species. The wing-waving component of the advertisement display appears to have been lost, leaving only the calling. The Tree Sparrow, *P. montanus* (Berck 1961) shows a similar change, the display being a persistent chirping in a normal upright posture, with pairing occurring either near the nest or at a communal roost. This species shows a special fluttering display flight when nest advertising and also possesses other displays (similar to those used by hole-nesting species such as the Nuthatch *Sitta europea* and the Redstart *Phoenicurus phoenicurus*) which have presumably been evolved in response to the hole-nesting habits of *P. montanus*.

The evolutionary trend in these sparrows appears to have been away from domed nests in open bushes or trees and towards nests in niches or holes. The loss of the wing-waving component of the nest advertisement displays appears to run concurrent with this and might well be related to this trend and the needs of a different nest site. The various accounts seem to suggest that loss has been accompanied by an increasing use of the voice in nest advertisement.

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Figs. 1, 2, 3 and 5 are after Crook, (1960b and 1962a) and Fig. 4 after Kunkel 1961.